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Reply to Eberlein et al.

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with return to OR for bleeding, primary graft dysfunction, longer length of stay and increased resource utilization was reported [6]. Thus, it would be helpful, if more details on post-transplant complications between groups could be provided. The survival data, which are limited to an unadjusted Kaplan-Meier survival analysis comparing conventional with lobar LTx, make it difficult to interpret the results in context. The lobar LTx group consisted predominantly of patients with cystic fibrosis, who in general have the most favourable long-term survival. It would be informative if the authors could show analysis within the same diagnostic groups (i.e. cystic fibrosis). Furthermore, providing a multivariate Cox proportional hazard model adjusted for important confounders would strengthen the assessment of clinical outcomes.

We wish to conclude by thanking and congratulating Inci *et al.* on their important study on bilateral lobar LTx allowing life-saving transplants in 'short' recipients, who otherwise might not be able to receive an appropriately sized allograft in a timely way.

REFERENCES

- [1] Inci I, Schuurmans MM, Kestenholz P, Schneiter D, Hillinger S, Opitz I *et al.* Long-term outcomes of bilateral lobar lung transplantation. *Eur J Cardiothorac Surg* 2013;43:1220-5.
- [2] Oto T, Date H, Hayama A, Ando A, Shimizu N. Peripheral lung volume reduction improved early graft function in severe size mismatched living donor lobar lung transplantation. *Transplant Proc* 2005;37:4515-21.
- [3] Binns OA, DeLima NF, Buchanan SA, King RC, Cope JT, Maliszewskyj JD *et al.* Use of over-sized mature pulmonary lower lobe grafts results in superior pulmonary function. *Ann Thorac Surg* 1997;64:307-12.
- [4] Chen F, Matsukawa S, Ishii H, Ikeda T, Shoji T, Fujinaga T *et al.* Delayed chest closure assessed by transesophageal echocardiogram in single-lobe lung transplantation. *Ann Thorac Surg* 2011;92:2254-7.
- [5] Sweet SC. Pediatric living donor lobar lung transplantation. *Pediatr Transplant* 2006;10:861-8.
- [6] Eberlein M, Arnaoutakis GJ, Yarmus L, Feller-Kopman D, Dezube R, Chahla MF *et al.* The effect of lung size mismatch on complications and resource utilization after bilateral lung transplantation. *J Heart Lung Transplant* 2012;31:492-500.

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LETTER TO THE EDITOR RESPONSE

Reply to Eberlein *et al.*

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Keywords: Lung transplantation • Lobar transplantation • Size-reduced lung transplantation

We thank Eberlein *et al.* [1] for their interest in our article [2]. The purpose of our study [2] was not to show that oversized grafts are associated with more perioperative complications and worse outcome compared with standard lung transplantation. In our experience, oversized lung grafts can potentially lead to atelectasis and impaired airway clearance, which leads to a more complicated postoperative course [3]. Optimal size matching is therefore very important. For optimal size matching, different methods have been proposed, such as donor-recipient difference or ratio of body weight and height [4, 5]. In addition, chest circumference and chest x-ray vertical and transverse dimensions have been used [4]. Others have used donor and recipient total lung capacity (TLC) [4, 5]. Interestingly, a recent US study showed that overall post-transplant survival or lung function after standard lung transplantation was unaffected by donor-to-recipient predicted TLC ratio and actual TLC ratio [6]. We also calculated donor-predicted TLC/recipient-predicted TLC ratio (pTLC ratio) (Data not given in original article [2]). Median pTLC ratio was 1.5 (range, 0.84-2.44). In only one recipient this ratio was 0.84 and in all other 22 recipients, more than 1. In addition, there is a very significant correlation between pTLC ratio and donor-recipient height difference ($r=0.903$, $P=0.01$,

Pearson correlation test) and also between pTLC ratio and percentage of donor-recipient height discrepancy ($r=0.924$, $P=0.01$, Pearson correlation test). According to these data, it is also possible and reliable to decide size mismatch with donor-recipient height difference. We reported a rate of 39% haemothorax requiring reoperation [2]. Nineteen (83%) of the transplantations were performed with extracorporeal membrane oxygenation (ECMO) support. Three recipients were on ECMO preoperatively as a bridge to transplantation. This can explain the rate of haemothorax requiring intervention. Detailed information is given in our paper [2]. Our lobar transplant group are not predominately cystic fibrosis (CF) patients ($n=10$). The number of idiopathic pulmonary fibrosis patients is 8 and nearly equal to CF recipients.

REFERENCES

- [1] Eberlein M, Bolukbas S, Reed RM. Bilateral lobar lung transplantation and size mismatch by pTLC-ratio. *Eur J Cardiothorac Surg* 2013;44:394-5.
- [2] Inci I, Schuurmans MM, Kestenholz P, Schneiter D, Hillinger S, Opitz I *et al.* Long-term outcomes of bilateral lobar lung transplantation. *Eur J Cardiothorac Surg* 2013;43:1220-5.

- [3] Inci I, Irani S, Kestenholz P, Benden C, Boehler A, Weder W. Donor predicted post-operative forced expiratory volume in one second predicts recipients' best forced expiratory volume in one second following size-reduced lung transplantation. *Eur J Cardiothorac Surg* 2011;39:115–9.
- [4] Aigner C, Jaksch P, Taghavi S, Wisser W, Marta G, Winkler G *et al*. Donor total lung capacity predicts recipient total lung capacity after size-reduced lung transplantation. *J Heart Lung Transplant* 2005;24:2098–102.
- [5] Shigemura N, Bermudez C, Hattler BG, Johnson B, Crespo M, Pilewski J *et al*. Impact of graft volume reduction for oversized grafts after lung transplantation on outcome in recipients with end-stage restrictive pulmonary diseases. *J Heart Lung Transplant* 2009;28:130–4.
- [6] Mason DP, Batizy LH, Wu J, Nowicki ER, Murthy SC, McNeill AM *et al*. Matching donor to recipient in lung transplantation: how much does size matter? *J Thorac Cardiovasc Surg* 2009;137:1234–40.

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LETTER TO THE EDITOR

Red cell distribution width is a predictor of mortality in patients undergoing coronary artery bypass surgery

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Keywords: Red cell distribution width • Coronary artery bypass surgery • Inflammation

We read with interest the article 'Red cell distribution width and coronary artery bypass surgery', by Warwick *et al.*, [1]. They aimed to investigate the effect of red cell distribution width (RDW)—after adjustment for the haemoglobin level—on in-hospital mortality, long-term survival, myocardial damage as assessed by creatine kinase muscle-brain (CKMB) isoenzyme release and the length of hospital and intensive care unit (ICU). They concluded that the RDW was a significant factor determining in-hospital mortality and long-term survival, but that it had no significant effect on CKMB release or length of stay in ICU or hospital. Confounding factor analysis revealed that, in the absence of anaemia, the RDW was still a significant factor determining in-hospital mortality and long-term survival. They suggested that the RDW may be a significant factor determining in-hospital mortality and long-term survival in patients undergoing isolated coronary artery bypass graft (CABG). We believe that these findings will enlighten further studies on the relationships between RDW and coronary artery bypass surgery. Thanks to the authors for their contribution.

RDW has recently been identified as an independent predictor of all-cause, long-term mortality in patients with coronary artery disease [2]. Sometimes conditions like the differential diagnosis of anaemias might affect the RDW parameter and so this parameter might be changed in any such abnormality in thyroid function tests, renal or hepatic dysfunction (creatinine >1.5 mg/dl, aspartate aminotransferase and alanine transaminase more than twice the upper limit of normal, respectively), inflammatory diseases and any medication. On the other hand, it is also reported that an increased RDW may be associated with ethnicity and nutritional deficiency (i.e. iron, vitamin B₁₂ and folic acid). Reduced glomerular filtration rate (GFR) may also be associated with adverse outcomes in patients with cardiovascular disease. In a previous study, pre-operative GFR

was predictive of all-cause mortality, cardiovascular mortality and combined cardiovascular mortality and morbidity. GFR may be useful in identifying those patients undergoing CABG with subclinical chronic kidney disease [3]. For this reason, it would be better if the authors mentioned any of these possible conditions.

Present studies have shown that elevated levels of inflammatory molecules are markers of atherosclerotic disease activity. These molecules also indicate an increased risk of the progression of CABG and they can be reduced by medications such as antihypertensive therapy and acetylsalicylic acid treatment [4, 5]. Additionally, not only RDW but also neutrophil lymphocyte ratio, gamma-glutamyltransferase, C-reactive protein, mean platelet volume and uric acid are markers easily used to assess the cardiovascular disease of the patients [6]. These markers might be useful in clinical practice. RDW itself, alone without other inflammatory markers, may not give information to clinicians about the inflammatory condition and prognostic indication of the patients. So we think that it should be evaluated together with other serum inflammatory markers. Finally, it would be better if the authors defined their timescale for measuring RDW levels, because delay in blood sampling can cause abnormal results in RDW measurements.

REFERENCES

- [1] Warwick R, Mediratta N, Shaw M, McShane J, Pullan M, Chalmers J *et al*. Red cell distribution width and coronary artery bypass surgery. *Eur J Cardiothorac Surg* 2013;43:1165–9.
- [2] Tonelli M, Sacks F, Arnold M, Moye L, Davis B, Pfeffer M. Relation between red blood cell distribution width and cardiovascular event rate in people with coronary disease. *Circulation* 2008;117:163–68.